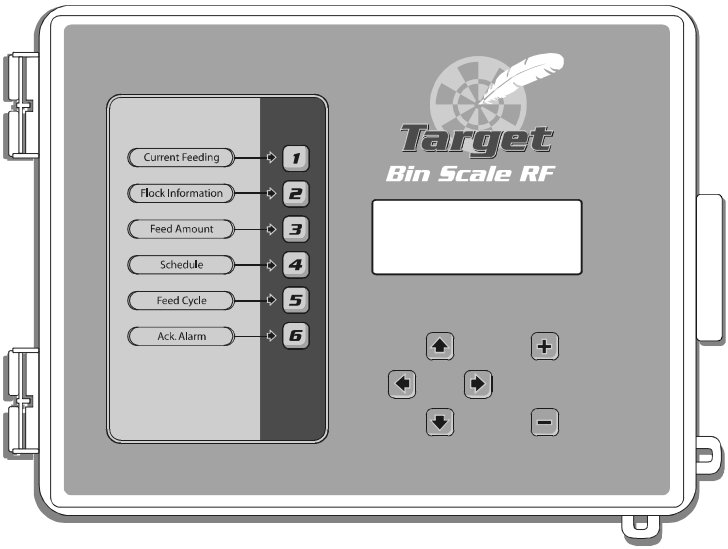
TARGET
Bin Scale RF
User's Manual



FOR CUSTOMER USE
Enter the serial number located on the side of the controller below for future reference.

Model number: **TARGET BIN SCALE RF**

Serial number: _____

NOTICE

Every effort has been made to ensure that this manual is complete, accurate and up-to-date. The information contained in it is however subject to change without notice due to further developments.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Precautions, Care & Maintenance

WARNING:
Read and save
these instructions!

Safety may be jeopardized if the equipment is used in a manner not specified by the manufacturer. Carefully read and keep the following instructions for future reference.

- Although fuses at the input and outputs of the controller protect its circuits in case of an overload or overvoltage, we recommend installing an additional protection device on the controller's supply circuit.

- The room temperature where the controller is located must always remain between 32 °F and 104 °F (0 °C to 40 °C). For Indoor use only !

- To avoid exposing the controller to harmful gases or excessive humidity, it is preferable to install it in a corridor.

- Do not spray water on the controller! In order to clean the control, wipe it with a damp cloth.

Before servicing or cleaning unit, switch power off at service panel and lock the switch disconnecting means to prevent power from being switched accidentally. When the service disconnecting means cannot be locked, securely fasten a prominent warning device, such as a tag, to the service panel.

- The controller should be opened and inspected once a year for moisture. Proper care will extend the life of the control.

1.2 List of Symbols

Warning. Read the following text carefully; it contains important information which, if ignored, may cause the controller to operate improperly.

High Voltage. Hazard of electrical shock. Read the message and follow the instructions carefully.

Pay attention. The following text contains very useful information.

Double insulation.

Both direct and alternating current (AC/DC).

Direct current (DC).

Alternating current (AC).

Earth Ground Terminal
Primarily used for functional earth terminals which are generally associated with test and measurement circuits. These terminals are not for safety earthing purposes but provide an earth reference point.

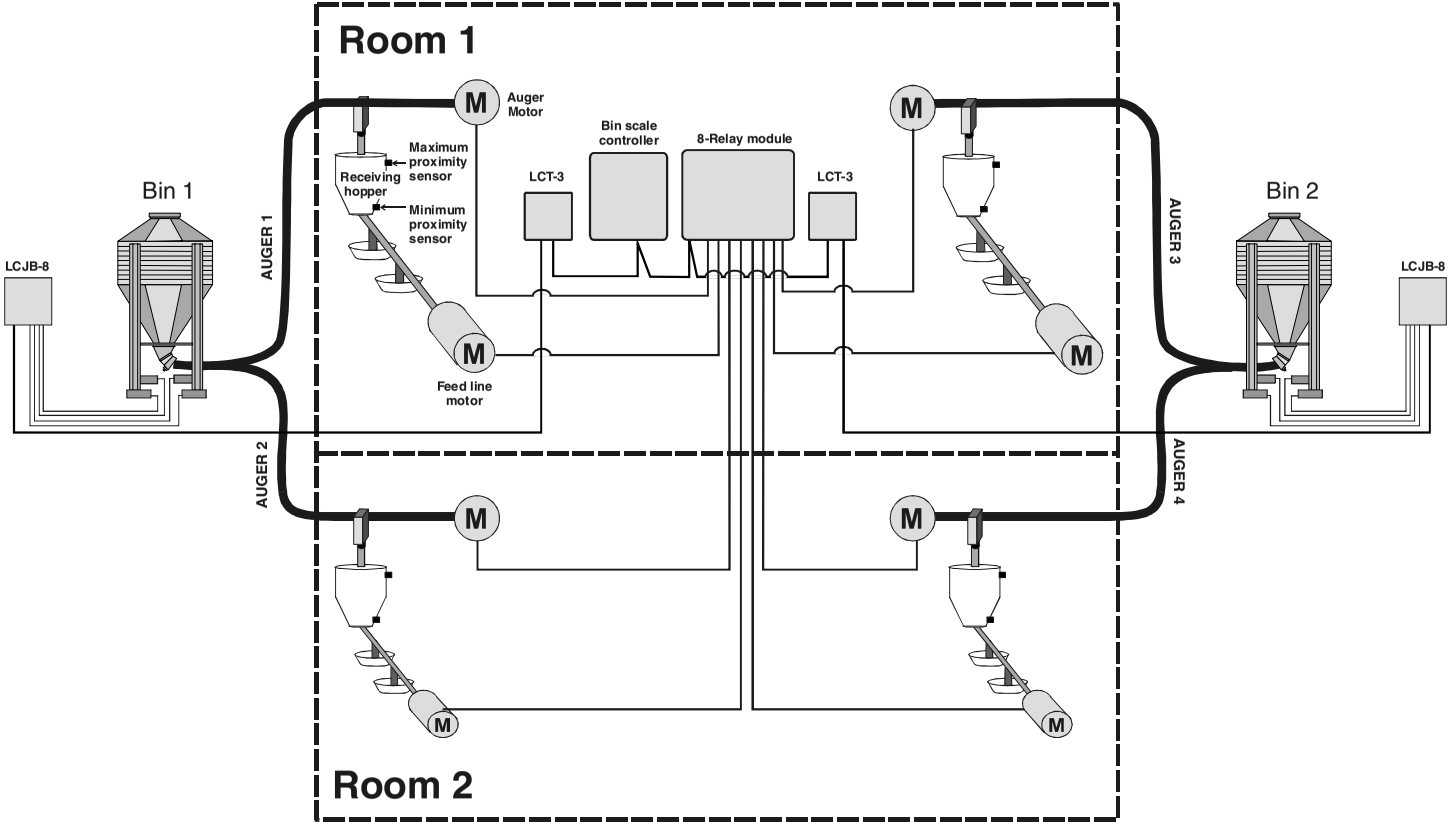
2 SYSTEM OVERVIEW

2.1 Description of the Controller

The *TARGET BIN SCALE RF* is an electronic device which weighs and distributes feed in livestock buildings. With this system, each bin is mounted on load bars. This way, the controller always knows what is the exact amount of feed remaining in each bin. The controller also refers to the bin weight to distribute precise feed rations to the birds.

In all, the *TARGET BIN SCALE RF* has 8 outputs to control up to 4 bin augers and 4 feed line motors. It also comes with 8 time clocks made of 24 cycles each.

2.2 Typical Application



3. MOUNTING INSTRUCTIONS

3.1 Installing the Controller on the Wall

Open the latch and lift the cover. Remove the black caps located on each of the four mounting holes. Mount the enclosure on the wall using four screws. Be sure the electrical knockouts are at the bottom of the enclosure in order to prevent water from entering the controller. Insert the screws in the mounting holes and tighten. Fasten the four black caps provided with the controller onto the four mounting holes. The enclosure must be mounted in a location that will allow the cover to be completely opened right up against the wall.

3.2 Connections

3.2.1 Controller's Main Wiring

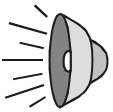
Refer to the wiring diagram enclosed with this user's manual to connect the controller. Use the electrical knockouts provided at the bottom of the enclosure. Do not make additional holes in the enclosure, particularly on the side of the enclosure when using a computer communication module.

All wiring must be done by an authorized electrician and must comply with applicable codes, laws and regulations. Be sure power is off before doing any wiring to avoid electrical shocks and equipment damage.

Do not install rigid conduit into electrical knockouts. Only nylon cable glands are permitted for cable or wire fastening.

The controller has no power-on switch. An external switch or circuit breaker shall be included in the building installation to interrupt power to L and N electric power lines. It shall be in close proximity to the equipment and within easy reach of the operator. It shall be marked as the disconnecting device for the equipment.

3.2.2 Alarm Connection



There are two types of alarms on the market. One type activates when current is cut off at its input, whereas the other activates when current is supplied at its input. For an alarm of the first type, use the NC terminal as shown on the wiring diagram. For an alarm of the second type, use the NO terminal.

4. USER INTERFACE

4.1 Location of the Controls

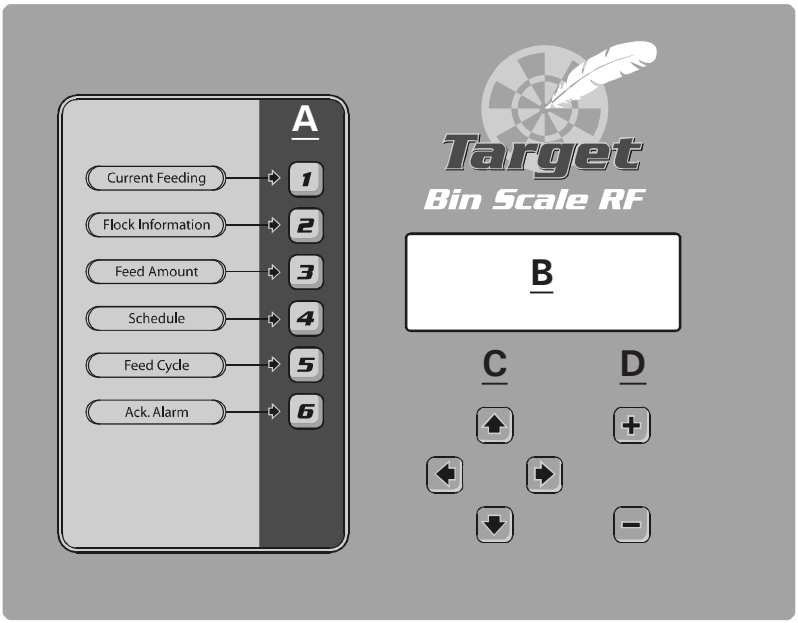


Figure: Controller's Faceplate

A **Shortcut Keys**. These 6 buttons allow the user to step quickly to the special preset functions on display B.

B **Display**. Shows the current parameter or reading.

C **Arrow keys**. The up and down arrow keys are used to scroll within a function menu. The right arrow key is used to select a menu option. The left arrow key is used to return to the previous menu display.

D **Adjustment Buttons**. These two push-buttons allow the user to adjust the value of the parameter shown on display B.

4.2 How to Select & Modify the Parameters

The *TARGET BIN SCALE RF* controller has been designed with the user in mind. Thus, great care has been put into making the user interface as easy to understand as possible. The following paragraphs explain the way the parameters are organized and how to adjust them.

- **Changing Parameter Values**
  When a parameter value flashes on screen, it can be adjusted by the user with the adjustment buttons.

- **How the Parameters are Grouped**
  All parameters and readings are grouped into logical groups called functions. Functions are selected using the arrow keys or by stepping through the function menus. To scroll the options within a menu, use the up and down-arrow keys ▲ ▼. If a menu has more than two items, the display scrolls to show additional items. Use the right-arrow key ▶ to select a menu option. Use the left-arrow ◀ key to return to the previous menu. Note that if passwords are used, some parameters may not be accessible to all users for security reasons.

- **Shortcut keys**
  These 6 buttons allow the user to quickly step to the special preset functions on display. The table beside shows the destination of these keys.

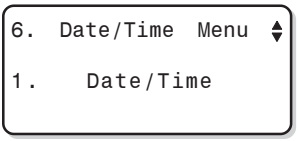
Short-cut Keys	Destination
1	Current Feeding
2	Flock Information
3	Feed Amount
4	Schedule
5	Feed Cycle
6	Acknowledge Alarm

Table: Shortcut Keys' Destination

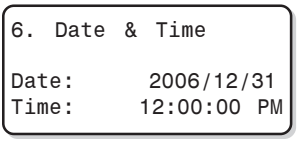
5. CONTROLLER SETUP

5.1 Setting the Time & Date

- Select the "**6. Date/Time**" menu from the main menu then press the right-arrow key twice. The year starts flashing on the display.



- Use the adjustment buttons to set the year. Note that the date format may vary depending on the controller configuration.

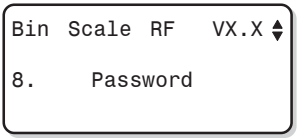


- Press the right-arrow key. The month flashes on the display. Use the adjustment buttons to set the month.
- Press the right-arrow key. The day flashes on the display. Use the adjustment buttons to set the day.
- Press the right-arrow key. The hour flashes on the display. Use the adjustment buttons to set the hour.
- Proceed in similar fashion to set the minutes and seconds.
- Press the left-arrow as many times as required to exit from this menu.

5.2 Password

For security reasons, a password is required to access the installation mode. The password is made up of three blocks of two digit. **By default, the installer password is set to 03 05 14 and cannot be changed.**

- Select the **"8. Password"** menu from the main menu then press the right-arrow key. The current mode is displayed.



- Press the right-arrow key once again. The first two digits of the password flash on the display.

- Use the adjustment buttons to set the first two digits of the password then press the right-arrow key.

- Proceed the same way to set the second and third two digits. Press the right-arrow key to validate the password. The message **"Wrong Password"** is displayed when an invalid password is entered.

- Press the left-arrow as many times as required to exit from this menu.

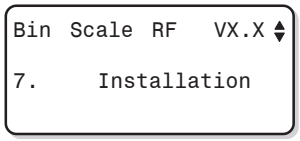
5.3 Installation Setup

The following section shows how to customize the controller for your particular application. Normally, this setup needs to be done only once.

Work sheets are available at the end of this manual (chapter 12) to write down your parameter settings.

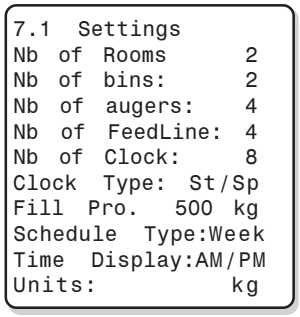
- Select "**7. Installation**" from the main menu then press the right-arrow key.

  This menu is only accessible from the installer mode (see sec. 5.2).



- Press the right-arrow key once again to select the "**1.Settings**" menu then use the adjustment buttons to set the following parameters:

Number of rooms:
Enable the proper number of rooms (1 or 2 rooms).



Number of bins:
Enable the desired number of bins (1 or 2 bins).

Number of augers:
Enable the desired number of bin augers (1 to 4 augers).

Number of feed lines:
Enable the proper number of feed lines (1 to 4 feed lines).

Number of clock:

The controller has 8 clock outputs used to activate feed lines and augers. Note that some feed lines and/or auger motors must share common timers. Enable the proper number of time clocks (from 1 to 8 time clocks).

```
7.1  Settings
Nb  of  Rooms      2
Nb  of  bins:      2
Nb  of  augers:    4
Nb  of  FeedLine:  4
Nb  of  Clock:     8
Clock  Type:  St/Sp
Fill  Pro.   500  kg
Schedule  Type:Week
Time  Display:AM/PM
Units:          kg
```

Clock Type:

Clock output cycles can either stop after a chosen run time or at a precise time of day. Choose the way you want them to stop:

St/Rn = Start/Run; St/Sp = Start/Stop.

Filling protection:

In order to log the amount of feed delivered, the controller needs to detect a significant increase in the bin weight on a short period of time and the total amount feed delivered must exceed the **"Fill protection"** parameter value. Set the minimum amount of feed that is likely to be delivered in a bin to the desired value. This weight should be higher than the weight of a person who would climb on the bin for instance.

Schedule type:

The controller can distribute feed according to a weekly schedule (based on 7 days) or it can use a more flexible type of schedule, called the "Skip" schedule: the **weekly schedule** allows skipping specific feeding days (e.g.: skip all Mondays) whereas the **flexible schedule** allows skipping feeding days at regular intervals, without considering the day of the week (e.g.: skip a feeding day every 3 days).

Units:

Select desired weight measurement units:
kilograms (kg) or pounds (lbs).

Time Display:

Select the desired time format:
AM/PM or 24-hour format.

5.4 Relay & Time Clock Assignment

Relay Assignment

All feed line and auger motors must be connected to an external 8-relay control module. The table below shows where each output must be connected. This preestablished relay assignment cannot be modified. Refer to the wiring diagram enclosed with this manual to connect the loads.

RELAY	LOAD
1	Auger 1
2	Auger 2
3	Auger 3
4	Auger 4
5	Feed line 1
6	Feed line 2
7	Feed line 3
8	Feed line 4

Time Clock Assignment

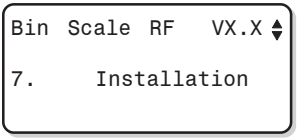
Augers and feed lines operate in timer mode. They can either use individual time clocks or can share common timers. Refer to section 6.2.3 to program the timers.

Bins with multiple augers:
If a bin uses multiple augers, you must program the timers in a way that there is only one auger running at a time! Thus, augers that are connected to a commun bin should never use common time clocks.

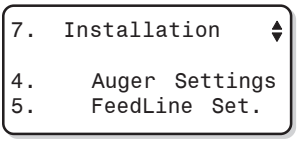
Worksheets are provided at the end of this manual to write down your time clock settings.

- Select "**7. Installation**" from the main menu then press the right-arrow key.

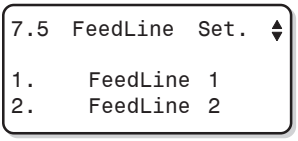
  This menu is only accessible from the installer mode (see sec. 5.2).



- To assign time clocks to bin augers, select "**4. Auger Settings**"; to assign time clocks to feed lines, select "**5. Feed Lines**".

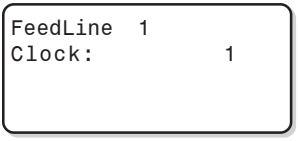


- Select the desired output (auger of feed line) then press the right-arrow key.



- Select which time clock is used by the selected output.

  Only time clocks that are enabled in the Installation menu are available (see section 5.3 to enable them).



- Proceed in similar fashion to assign a time clock to all augers and feed lines.

5.5 Bin Settings

This section shows how to set the low feed level of each bin. The controller sounds an alarm when the feed level gets lower than this limit.

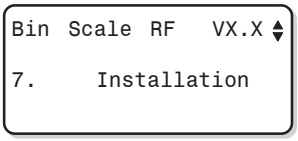
- Select "**7. Installation**" from the main menu then press the right-arrow key.

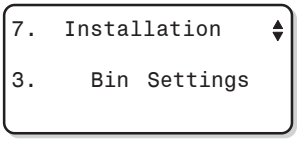
  This menu is only accessible from the installer mode (see sec. 5.2).

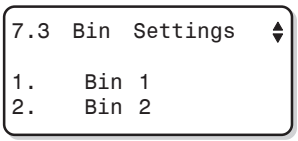
- Press the down-arrow key to select the "**3. Bin Settings**" menu then press the right-arrow key.

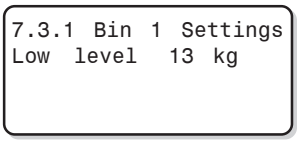
- Select the proper bin then press the right-arrow key.

- Use the adjustment buttons to set low bin level (reorder point). You can also disable this alarm condition by decreasing the parameter value to "None".









5.6 Bin Calibration

It is possible to calibrate bin scales using one or 2 reference weights:

The 1-point calibration mode allows calibrating a bin scale with only one reference weight: the weight of the feed that is currently present in the scale. This type of calibration can be performed at any time.

The 2-point calibration mode allows using two reference weights: the empty bin weight and the loaded bin weight; the bin has to be empty prior to the calibration.

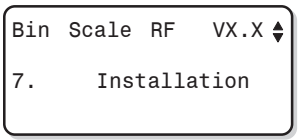
5.6.1 1-point Calibration

Settings

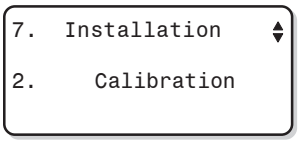
The 1-point calibration can be performed at any time, as long as you know the amount of feed present in the bin. If you don't know what is the exact amount of feed, you can estimate it: in that case, disable the "Low Level" option in section 5.5 and be sure to recalibrate the scale as soon as the bin gets empty.

Repeat the 1-point calibration each time the scale gets empty and its weight reading is other than 0 kg (or 0 lbs)

- Select "**7. Installation**" from the main menu then press the right-arrow key. This menu is only accessible from the installer mode (see sec. 5.2).



- Press the down-arrow key to select the "**2.Calibration**" menu then press the right-arrow key.



- Select the desired bin then press the right-arrow key.

- Press the right-arrow key to select the 1-point calibration method.

```
7.2.  Calibration   ▲▼

1.    Bin 1 One Point
2.    Bin 1 Two Pts
```

The following calibration parameters only become effective after having answered "Yes" to the "Calibrate ?" question at the bottom of the screen.

Number of load cells
Select the number of load cells that are supporting the bin (from 1 to 8 load cells).

Sensitivity of load cells
Enter the sensitivity of each load cell. The sensitivity value is specific to each load cell and is indicated on the load cell's calibration certificate. It is also written on each one of them.

```
7.2.1 Calibr Bin 1
Nb Load Cells :   4
Sen. LC1 :   3.0000
Sen. LC2 :   3.0000
Sen. LC3 :   3.0000
Sen. LC4 :   3.0000
Max Cap. : 10000 lbs
        [or  4536 kg]
Tare     :     0 lbs
Offset:    68764115
Stability tol:  2000
Push + for next step
Calibrate ?   No
```

Maximum capacity
Enter the maximum weight capacity of load cells. This value is indicated on the calibration certificate enclosed with each load cell and it is written on each one of them. The maximum capacity is common to all load cells.

Tare
Specify the amount of feed that is currently present in the bin scale (do not include the weight of the bin).

Offset: The offset is a parameter that allows you to recover your calibration settings after installing a new configuration in your controller. This value is automatically defined by the controller after having calibrated the scale; once the scale is calibrated, **write down your Offset value somewhere handy** (a worksheet is available at the end of this manual to write it down).

Stability tolerance
The controller can only calibrate a bin when the weight reading is stable enough. Otherwise, it will display an error message. The **stability tolerance** is the variation in the weight reading the controller can tolerate to calibrate the bin scale. By default it is set to 2000.

The weight reading may be unstable in windy conditions. We thus suggest to wait for a mild day to perform the calibration. If this is not possible, increase the stability value in steps of 1000 each time the controller gives an error message.

Calibrate?
Select "Yes" to calibrate the bin scale. The message "Please Wait" is displayed. Wait until the end of the calibration (this process may take a few minutes).

If calibration is successful, the message "Please Wait" disappears and the "- - - - " display switches back to "No"; if it fails, the controller displays "ERROR". In case of an error, increase the stability tolerance value by 1000 then try calibrating the scale once again.

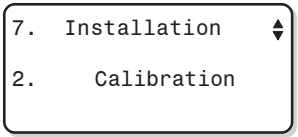
Once the calibration is over, do not forget to write down the Offset value defined by the controller. A worksheet is available at the end of this manual to write it down.

Recovering your Calibration Settings

The controller looses all of its calibration settings after loading a new program configuration. You can still recover your calibration settings by entering the previous "Offset" parameter value in the controller as follows:

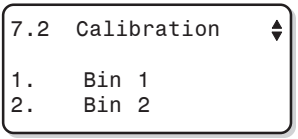
- Select "**7. Installation**" from the main menu then press the right-arrow key.

  This menu is only accessible from the installer mode (see sec. 5.2).

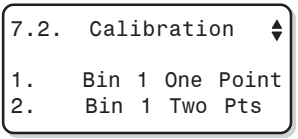


- Press the down-arrow key to select the "**2.Calibration**" menu then press the right-arrow key.

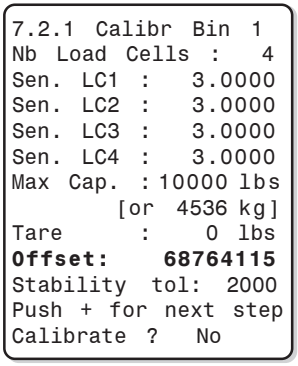
- Select the desired bin then press the right-arrow key.



- Press the right-arrow key to select the 1-point calibration method.



- Adjust the following parameters once again (refer to the beginning of this section to get information about these parameters):
  - Sensitivity of all load cells
  - Maximum capacity of load cells
  - Tare: estimate the amount of feed in the bin.



- Once these parameters are entered, answer "Yes" to the "Calibrate?" question. The controller will define a new offset.

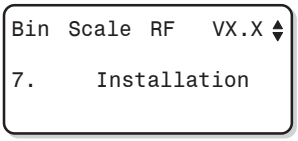
- Replace the newly calculated offset by the offset value coming from your previous calibration. This way, you will recover your previous calibration settings.

5.6.2 2-point Calibration

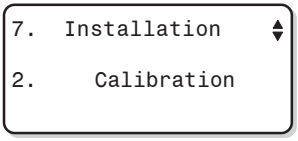
The following steps explain how to calibrate bin scale with the 2-point calibration method. The bin has to be empty prior to the calibration.

- Select "**7. Installation**" from the main menu then press the right-arrow key.

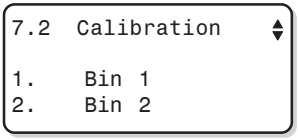
  This menu is only accessible from the installer mode (see sec. 5.2).



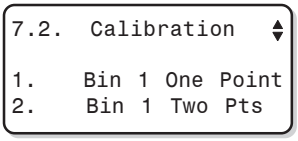
- Press the down-arrow key to select the "**2.Calibration**" menu then press the right-arrow key.



- Select the proper bin then press the right-arrow key.



- The following steps explain how to calibrate the empty and the loaded states of the bin. Please start with the empty state calibration:



CALIBRATION POINT 1: Empty Bin

- Access the calibration menu as shown above.
- Select the **"Bin #X Empty"** menu then press the right-arrow key.
- Use the adjustment buttons to set the following parameters:

```
6.2  Calibration
1.    Bin 1 Empty
2.    Bin 1 Full
```

Stability tolerance

The controller can only calibrate a bin when the weight reading of the bin is stable enough; otherwise, the controller displays an error message. The **stability tolerance** is the stability value the controller can tolerate to calibrate the scale. By default it is set to 2000.

```
6.2.1 Calib Bin 1
Stability tol: 2000
Min Weight 0    kg
Push + for next step
Min Calib? No
```

The weight reading may be unstable in windy conditions. We thus suggest to wait for a mild day to perform the calibration. If this is not possible, increase the stability value in steps of 1000 each time the controller gives an error message.

Minimum weight

Ideally, the bin should be empty prior to calibrating the empty bin status (Min Weight = 0 kg). However, if a certain amount of feed is already present in the bin before the empty state calibration, specify this feed weight (minimum weight).

Calibrate the minimum state?

Select "Yes" to calibrate the empty status of the bin scale. The message "Please Wait" is displayed. Wait until the end of the calibration (this process may take a few minutes).

If calibration is successful, the message "Please Wait" disappears and the "- - - - " display switches back to "No"; if it fails, the controller displays "ERROR". In case of an error, increase the stability tolerance value by 1000 then try calibrating the scale once again.

CALIBRATION POINT 2 : Loaded Bin

- Fill up the bin with a precise amount of feed.
- Access the calibration menu as shown at the beginning of this section.
- Select the **"Bin #X Full" menu** then press the right-arrow key.

```
7.2  Calibration
1.    Bin 1 Empty
2.    Bin 1 Full
```

- Use the adjustment buttons to set the following parameters:

Stability tolerance

The controller can only calibrate a bin when the weight reading of the bin is stable enough; otherwise, the controller displays an error message. The **stability tolerance** is the stability value the controller can tolerate to calibrate the scale. By default it is set to 2000.

```
7.2.2 Calib Bin 1
Stability tol: 2000
Max Weight 10000 kg
Push + for next step
Max Calib? No
```

The weight reading may be unstable in windy conditions. We thus suggest to wait for a mild day to perform the calibration. If this is not possible, increase the stability value in steps of 1000 each time the controller gives an error message.

Maximum weight

Specify the total amount of feed present in the bin scale (do not forget to include the feed weight that was present in the bin at the beginning of the calibration (if applicable)).

Calibrate the maximum state?

Select "Yes" to calibrate the loaded bin. The message "Please Wait" is displayed. Wait until the end of the calibration (this process may take a few minutes).

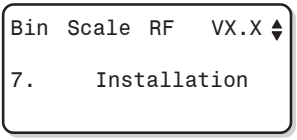
If calibration is successful, the message "Please Wait" disappears and the "Yes" answer switches back to "No"; if it fails, the controller displays "ERROR". In case of an error, increase the stability tolerance value by 1000 then try calibrating the scale once again.

5.7 Auger Settings

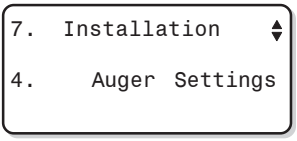
Follow these steps to specify the location of each auger, the type of birds that are receiving feed coming from each auger (males or females) and the bin scale to which each auger is connected.

- Select "**7. Installation**" from the main menu then press the right-arrow key.

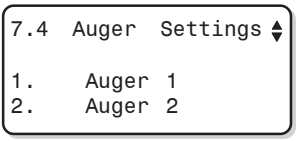
  This menu is only accessible from the installer mode (see sec. 5.2).



- Press the down-arrow key to select the "**4. Auger Settings**" menu then press the right-arrow key.

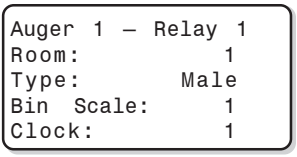


- Select the desired auger then press the right-arrow key.



Room:
Select the destination of the selected auger: room 1 or room 2.

Room 2 is only available if it is enabled in the Installation Setup menu (see sec. 5.3).



Type:
Select the type of birds that are receiving feed coming from the selected auger (males or females).

Bin Scale:
Select the bin to which the auger is connected.

Clock:
Select which time clock the auger uses. Refer to section 5.4 for further information about time clocks.

6 FEED DISTRIBUTION

6.1 Principle of Operation

6.1.1 Feeding Schedule

The controller can distribute feed according to a weekly schedule (based on 7 days) or it can use a flexible type of schedule. The weekly schedule allows skipping some feeding days (e.g.: skip all Mondays) whereas the flexible schedule allows skipping feeding days at regular intervals, without considering the day of the week (e.g.: skip a feeding day every 3 days). Refer to section 5.3 to enable the desired type of schedule.

6.1.2 Amount of Feed

The controller automatically calculates the amount of feed to be delivered as a function of the number of birds in the barn: you must first select what type of feed needs be delivered to males and to females (e.g. bin 1 feed is delivered to males) and then specify the daily feed consumption per 100 birds (e.g. 4000 g per 100 males). The controller uses this information to calculate the amount of feed as follows:

Daily feed consumption settings:

Bin 1 (males)	=	4000	g / 100 birds
Bin 2 (females)	=	3000	g / 100 birds
# of males	=	10	males
# of females	=	200	females

Results:

Today, males will receive a total of 400 g of feed from bin 1 (10 / 100 x 4000);

Today, females will receive a total of 6000 g of feed from bin 2 (200 / 100 x 3000);

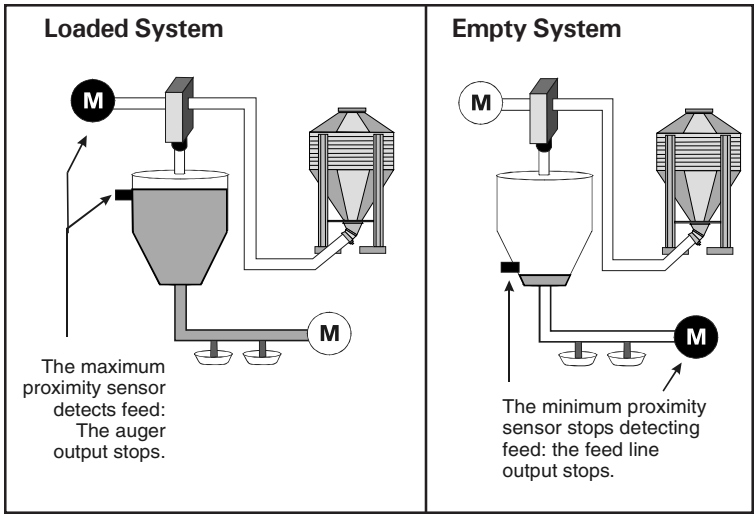
6.1.3 Feeding Cycles (Time Clocks)

Augers and feed lines operate in timer mode using the time clock outputs of the controller. Each clock output has 24 cycles which allow distributing feed into separate batches.

RESTRICTIONS:

Stopping augers when the system is loaded:
Bin augers automatically stop when the feeding system is full (the proximity sensor located at the top of the receiving hopper detects the presence of feed).

Stopping feed lines when the system is empty:
Feed lines also stops when the receiving hopper is empty (the proximity sensor located at the bottom of the receiving hopper stops detecting feed).



End of feeding cycles
The controller disables feeding cycles when the total amount of feed to be delivered today is reached.

6.2 Settings

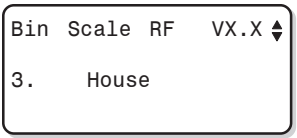
6.2.1 Programming the Weekly Feed Schedule

When the controller uses the weekly feed schedule, you must specify the amount of feed to be delivered separately for each day of the week. Refer to section 6.1.1 for further information about the feeding schedule.

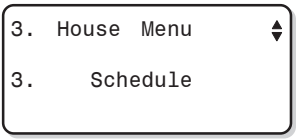
Press the corresponding short-cut key to access the following menu.

Use the copy-paste function if several days are using the same feed settings. Copy/paste parameters are located at the bottom of this menu display.

- Select "**3. House**" from the main menu then press the right-arrow key.

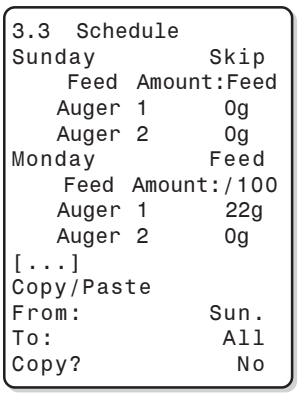


- Press the down-arrow key to select the "**3.Schedule**" menu then press the right-arrow key.
  The following parameters are only displayed if the type of feed schedule is set to "Feed" in the Installation menu (sec. 5.3).



Day of the week:
Set the feeding status for each day of the week: skip or feed.

Feed amount:
For each feeding day, set the amount of feed to be delivered per hundred birds. This amount of feed must be set separately for auger 1 and for auger 2 (remember that each auger is related to a specific bin and to a specific bird type).



Copy/Paste
The following menus allow copying feed settings from a specific day of the week on another day.

From / To:
Select the day of the week whose feed parameters need to be copied and then, select the day on which parameters will be pasted (select "All" if you want to copy the parameters on all days of the week).

Copy?
Select "Yes" to launch the copying process. The "Yes" answer returns to "No" when the copy is over.

```
3.3  Schedule
Sunday          Skip
    Feed  Amount:Feed
   Auger 1       0g
   Auger 2       0g
Monday          Feed
    Feed  Amount:/100
   Auger 1      22g
   Auger 2       0g
[...]
Copy/Paste
From:           Sun.
To:              All
Copy?             No
```

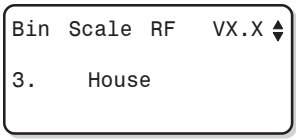
6.2.2 Programming the Flexible Feed Schedule

a) Setting the Schedule

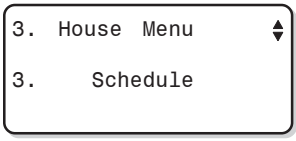
If the controller uses a flexible feed schedule, you must specify the frequency at which feeding days are skipped. Refer to section 6.1.1 for further information about the following parameters and refer to section 5.3 to enable this type of schedule.

Press the corresponding short-cut key to access the following menu.

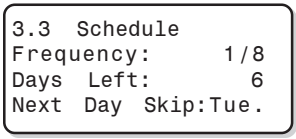
- Select "**3. House**" from the main menu then press the right-arrow key.



- Press the down-arrow key to select the "**3. Schedule**" menu then press the right-arrow key.



- Use the adjustment buttons to set the following parameters. Note that these parameters are only displayed if the type of feed schedule is set to "Skip" in the Installation menu (see sec. 5.3).



Frequency:
This is the frequency at which a feeding day is skipped. It can be adjusted from one day out of 2 to 8 days. Set the frequency to the desired value.

Days left:
This is the number of days that are left before the next skipped day. If required, you can modify the number of days before the next skipped day.

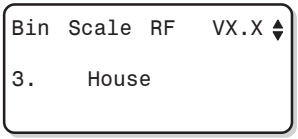
Next skipped day:
The next feeding day to be skipped is displayed. This day is automatically defined according to the skipping frequency and to the days left before the next skipped day. It cannot be modified.

b) Setting the Amount of Feed

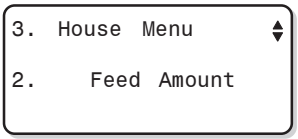
If the controller uses a flexible feed schedule, you must specify what amount of feed must be delivered on a feeding day. Refer to section 6.1.2 for further information about the following parameters and refer to section 5.3 to enable this type of schedule.

Press the corresponding short-cut key to access the following menu.

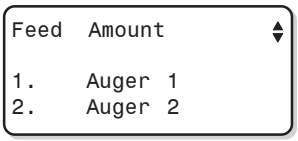
- Select "**3. House**" from the main menu then press the right-arrow key.



- Press the down-arrow key to select the "**2. Set Feed Amount**" menu then press the right-arrow key.



- Select the desired auger then press the right-arrow key.

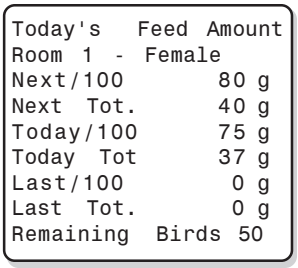


- Use the adjustment buttons to set the following parameters:

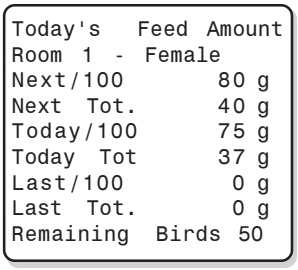
The following parameters can only be modified if the schedule type is set to "Skip" in the Installation menu (s. 5.3).

Room 1 (Male / Female):
The room where feed is delivered is displayed along with the sex of the birds that will receive this feed. Refer to section 5.7 to assign the bird sex and room number.

Next/100:
This is the daily amount of feed, coming from the selected bin auger, that needs to be delivered to the birds (amount per hundred males or females). The controller will start delivering this amount of feed tomorrow.



Next Total:
The controller automatically defines the amount of feed that will be delivered to the birds tomorrow according to the number of birds (males or females) remaining in the house. This value cannot be modified.



Today/100:
This is the daily amount of feed, coming from the selected bin auger, that needs to be delivered to the birds today (amount per hundred males or females). Set this amount of feed to the desired value.

Today Total:
The controller automatically calculates the amount of feed that will be sent to the birds today according to the number of birds remaining in the house (males or females). This value cannot be modified.

Last/100:
This is the amount of feed per hundred birds (males or females), coming from the selected bin auger, that has been delivered yesterday. This value cannot be modified.

Last Total:
This is the total amount of feed coming from the selected bin auger, that has been delivered yesterday. This value cannot be modified.

Remaining Birds:
This is the current number of birds that are receiving feed from the selected bin auger. This count only includes birds of a same sex: the bird sex associated to the bin. This value cannot be modified.

6.2.3 Programming Time Clocks

Augers and feed lines operate in timer mode using time clock outputs of the controller. This section explains how to set the start and stop (or run) times of clock outputs. Refer to section 6.1.3 for further information about time clocks (feeding cycles).

Make sure each time clock is assigned to an auger or feed line (refer sec. 5.4.3).

Refer to the Installation Report section of this manual to write down all information regarding your time clocks (output assignment, start & stop times). See chapter 12.

- Select "**3. House**" then press the right-arrow key.
- Press the down-arrow key to select the "**4. Feed Cycle**" menu then press the right-arrow key.
- Select the desired time clock then press the right-arrow key.
- Use the adjustment buttons to set the following parameters:

```
Clock  1
Nb  of  Cycle      24
Reset   Cycles?    No

1   -   Start   9:00A
        Stop    9:30A
or
1   -   Start   9:00A
        Run  1:30  h:m

[...]
```

Number of cycles
Select how many cycles the time clock must perform every day.

Start / stop / run times
Set the time at which each cycle starts and stops or runs (depending on the chosen clock mode (sec. 5.3)). Note that the time at which the output stops cannot precede the start time and cannot go past midnight.

Reset cycles? Select "Yes" if you wish to reset all start and stop times to 12:00A and run times to 0:00.

7 MONITORING FUNCTIONS

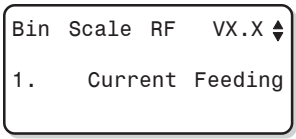
7.1 Feed Consumption

7.1.1 Current Feeding Information

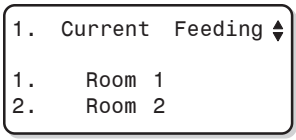
The following menu gives today's amount of delivered feed and amount of feed still to be delivered.

Press the corresponding short-cut key to access the following menu.

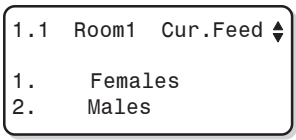
- Select "**1. Current Feeding**" from the main menu then press the right-arrow key.



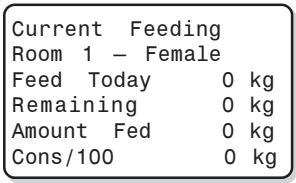
- Select the desired room then press the right-arrow key.



- Select the desired type of birds then press the right-arrow key.



- The feed distribution countdown is displayed as follows:



Feed today: This is the total amount of feed that will be distributed to males or females today (depending on the chosen type of birds).

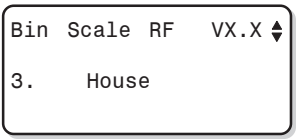
Remaining: This is the amount still to be delivered today.

Amount Fed: This is the amount of feed that has been distributed to males or females today (depending on the chosen type of birds).

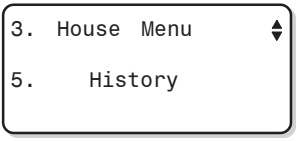
Cons/100: This is the amount of feed consumed today per hundred males or females (depending on the chosen bird type).

7.1.2 Feed Consumption History

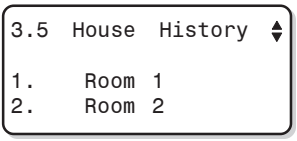
The following menu shows the amount of feed that has been consumed since the past 60 days.



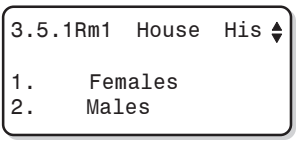
- Select "**3. House**" from the main menu then press the right-arrow key.



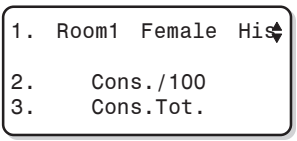
- Press the down-arrow key to select the "**5.History**" menu then press the right-arrow key.



- Select the desired room then press the right-arrow key.

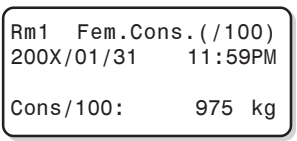


- Select the proper type of bird then press the right-arrow key.

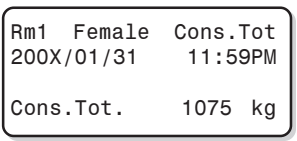


- Select the desired type of consumption history:

  "2. Consumption / 100 birds
  This menu gives the daily feed consumption, per 100 birds, from the past 60 days.



  3. Consumption Total
  This menu gives the total feed consumption from the past 60 days.



- Press the down-arrow key to scroll down through the history menu.

7.2 Bins

7.2.1 Bin Refills

The controller knows feed is being delivered when the weight of a bin increases significantly in a short period of time. It measures the weight of delivered feed by removing the initial weight of the bin from the loaded bin weight.

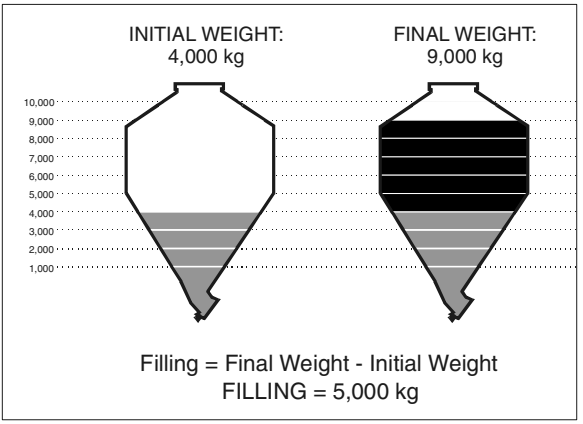
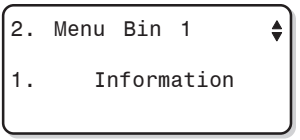


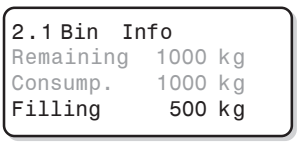
Figure: Feed Delivery

Weight of the Last Refill

Follow these steps to see the weight of the last refill.

- Select "**2. Feed Inventory**" from the main menu then press the right-arrow key.
- Select the desired bin then press the right-arrow key.
- Press the right-arrow key once more to select the "**1. Information**" menu.
- The weight of the last refill is displayed.

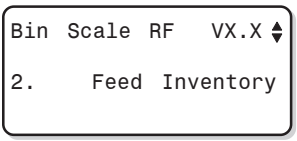




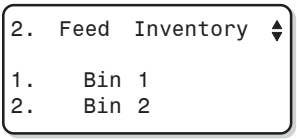
History of Bin Refills

The controller has an history menu which contains the weight of the past 100 fillings.

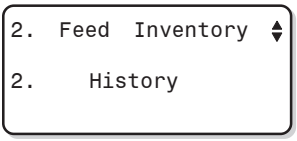
- Select "**2. Feed Inventory**" from the main menu then press the right-arrow key.



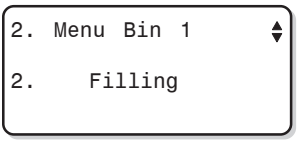
- Select the desired bin then press the right-arrow key.



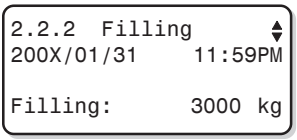
- Press the down-arrow key to select the "**2.History**" menu then press the right-arrow key.



- Press the down-arrow key to select the "**2. Filling**" menu then press the right-arrow key.



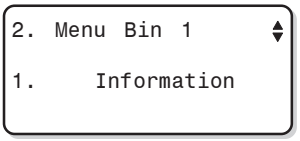
- The filling history is displayed. Press the down-arrow key to scroll down through the history.

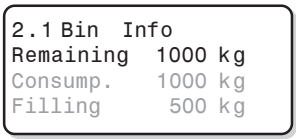


7.2.2 Feed Remaining in the Bins

Current remaining feed:

- Select "**2. Feed Inventory**" from the main menu then press the right-arrow key.
- Select the desired bin then press the right-arrow key.
- Press the right-arrow key once more to select the "**1. Information**" menu.
- The amount of remaining feed is displayed.

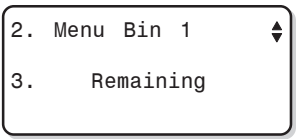


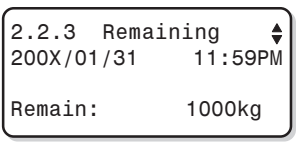


History of remaining feed:

The controller has an history menu which contains amount of remaining feed from the past 60 days.

- Select "**2. Feed Inventory**" from the main menu then press the right-arrow key.
- Select the desired bin then press the right-arrow key.
- Press the down-arrow key to select the "**2.History**" menu then press the right-arrow key.
- Press the down-arrow key to select the "**3. Remaining**" menu then press the right-arrow key.
- The history of remaining feed is displayed. Press the down-arrow key to scroll down through this history.



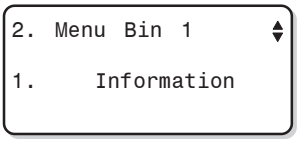


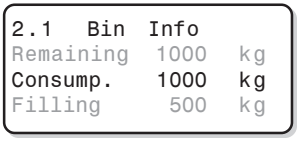
7.2.3 Bin Consumption

Bin consumption menus give the daily amount of feed that has been taken away from the bins today.

Today's consumption:

- Select "**2. Feed Inventory**" from the main menu then press the right-arrow key.
- Select the desired bin then press the right-arrow key.
- Press the right-arrow key once more to select the "**1. Information**" menu.
- The amount of feed that was taken away from the selected bin today is displayed.

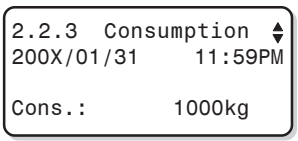




Consumption history:

The controller has an history menu which contains the amount of feed that was taken away the bins from the past 60 days.

- Select "**2. Feed Inventory**" from the main menu then press the right-arrow key.
- Select the desired bin then press the right-arrow key.
- Press the down-arrow key to select the "**2.History**" menu then press the right-arrow key.
- Press the down-arrow key to select the "**1. Consumption**" menu then press the right-arrow key.
- The consumption history is displayed. Press the down-arrow key to scroll down through this history.



7.3 Bird Count

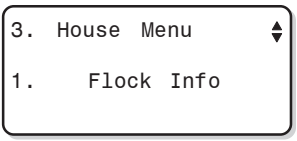
The controller calculates the amount of feed to be distributed to the birds as a function of the number of birds remaining in the house. It is thus important to update the animal count on a regular basis.

Starting a new flock
The "Start new flock" option allows resetting feed consumption histories and resetting the number of birds of the previous flock.

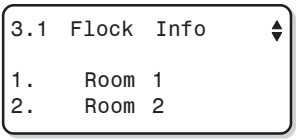
Changing the current animal count
After the flock is enabled, enter the initial number of birds in the house (set the number of males and females separately). Then, update the animal count when new birds are added to the flock or when mortality occurs.

7.3.1 Information about the Flock

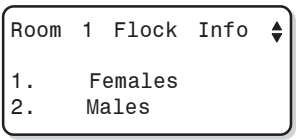
- Select "**3. House**" from the main menu then press the right-arrow key.



- Press the down-arrow key to select the "**1.Flock info**" menu then press the right-arrow key.

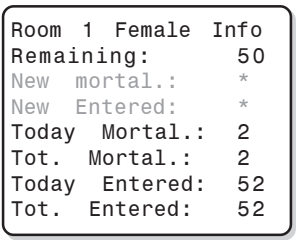


- Select the desired room then press the right-arrow key.



- Select the desired type of birds then press the right-arrow key. The current pieces of information are displayed:

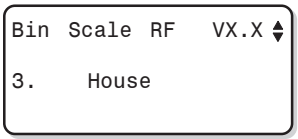
  - Number of remaining birds;
  - Number of mortalities (today);
  - Number of mortalities (total);
  - Number of new bird entries (today);
  - Number of new bird entries (total).



7.3.2 Starting a New Flock

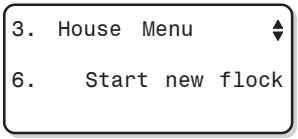
The following steps explain how to start a new flock; starting a new flock clears all consumption logs and resets the number of birds in the house (of both rooms).

- Select "**3. House**" from the main menu then press the right-arrow key.

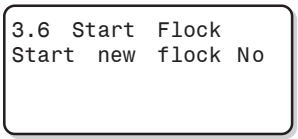


- Press the down-arrow key to select the "**6.Start new flock**" menu then press the right-arrow key.

  This menu is only accessible from the installer mode (see sec. 5.2).



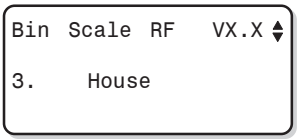
- To start the new flock, answer "**Yes**" to the "**Start new flock**?" question. The "Yes" answer automatically returns to "No" when the new flock is created (after 8 seconds).



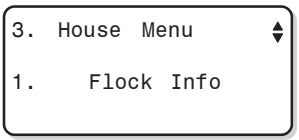
7.3.3 Updating the Bird Count

Follow these steps to enter the number of new bird entries or the number of dead birds that were found today. Set these values separately for males and for females.

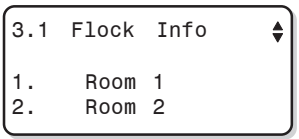
- Select "**3. House**" from the main menu then press the right-arrow key.



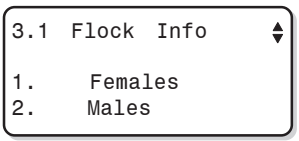
- Press the down-arrow key to select the "**1.Flock Info**" menu then press the right-arrow key.



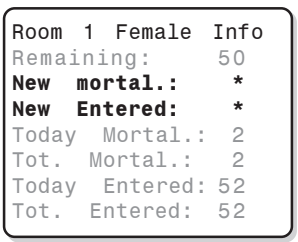
- Select the desired room then press the right-arrow key.



- Select the proper type of bird then press the right-arrow key.



- Use the arrow keys to set the following parameters:



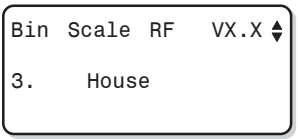
New Entered:
Specify the number of new male or new female entries. The posted value automatically returns to "*" once it is validated. It is then added to the remaining bird count.

New Mortality:
Specify the number of dead males or females. The posted value automatically returns to "*" once it is validated. It is then removed from the remaining bird count.

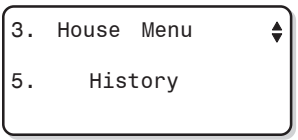
7.3.4 Mortality History

The controller has an history menu which contains the daily number of mortalities from the past 60 days.

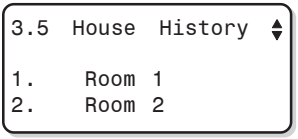
- Select "**3. House**" from the main menu then press the right-arrow key.



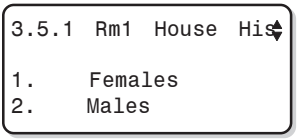
- Press the down-arrow key to select the "**5.History**" menu then press the right-arrow key.



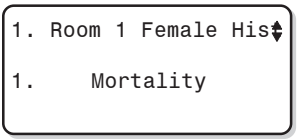
- Select the desired room then press the right-arrow key.



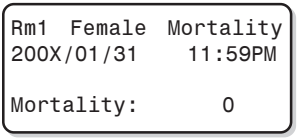
- Select the proper type of bird then press the right-arrow key.



- Press the right-arrow key to select the "**1. Mortality**" menu.



- Press the down-arrow key to scroll down through the history menu.



8. ALARMS

8.1 Alarm Conditions

The table below gives a list of all possible alarm conditions.

When the alarm relay is activated, the normally open contact () closes.

ALARM CONDITIONS	MEANING
Comm. Error Bin x	There's a communication problem between the controller and the LCT-3 modules of bin X.
Power ON	Power has failed to the controller.
Low Alarm Bin x	The amount of feed in bin X is lower than the "Low Bin" alarm setting. This type of alarm needs to be acknowledged by the user.
Auger Clock Error Assign. Conflict	The same time clock is assigned to both augers of a bin. Correct the time clock assignment (see section 5.4.3)

8.2 Alarm Log

The controller logs the past 100 alarm conditions into an history menu. It logs each alarm condition along with the time and date at which the alarm occurred.

Press the corresponding short-cut key to access the following menu.

- Select the **"4. Alarm Log"** menu from the main menu then press the right-arrow key.

```
4. Alarm Log
200X/12/31   12:00 PM
Comm. Error Bin 1
```

- Use the down-arrow key to scroll down the display and look at all recorded alarm conditions.

Resetting the Alarm Log
To reset the alarm log, simultaneously press the + and - buttons for 3 seconds (this operation can only be performed by the installer).

8.3 Acknowledging an Alarm

The following procedure shows how to acknowledge a low bin alarm. This type of alarm condition must be acknowledged by the user for the alarm to stop.

- Select the **"5. Ack Alarm"** menu from the main menu then press the right-arrow key.

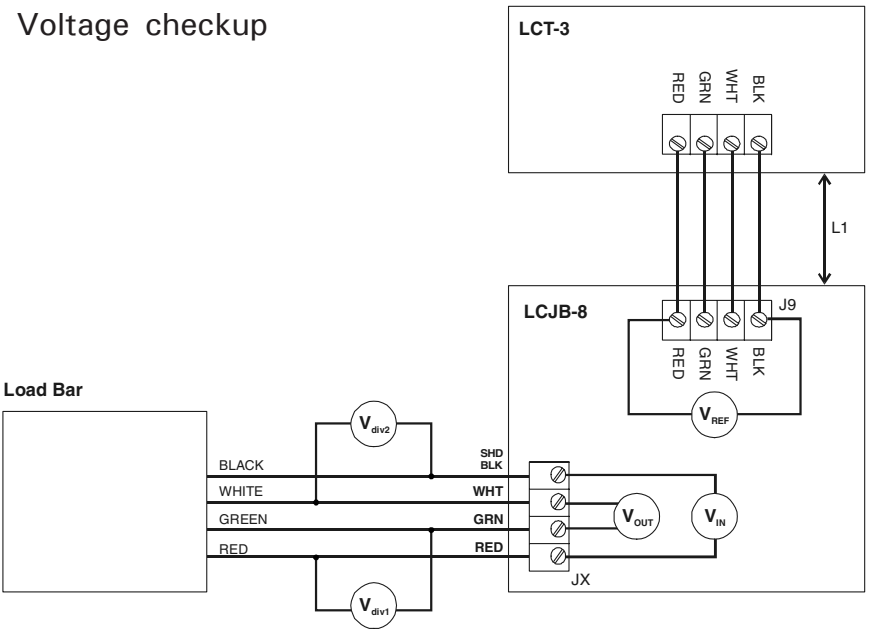
```
5.  Acknowledge
Bin1 Lo weight     No
```

- Use the arrow keys to select the alarm condition to be acknowledged.
- Press + to acknowledge the alarm.

9. TROUBLESHOOTING GUIDE

VREF reading on the LCJB-8 module									
Parameter	**Specification**	**Load bar 1**	**Load bar 2**	**Load bar 3**	**Load bar 4**	**Load bar 5**	**Load bar 6**	**Load bar 7**	**Load bar 8**
Input voltage (V_{in})	$V_{IN} \cong V_{REF}$ VREF should be between 4.3 and 5V, depending on the gauge and length(L1) of the wire								
Output voltage (Vout)	15mV max Vout should be between 0.0 and 15.0 mV depending on the weight of the bin								
Divided Voltage (V_{div1})	V_{div1} should be close to V_{REF} / 2								
Divided Voltage (V_{div2})	V_{div2} should be close to V_{REF} / 2								

Voltage checkup



PROBLEM	CAUSE	SOLUTION
The main controller does not turn on.	The wiring is incorrect.	a) Turn off the power. b) Remove all wires from the MODULE terminals of the main controller. c) Wait 5 minutes. d) Apply power to the main controller: if the controller starts, then there is a wiring problem. e) Fix the wiring.
	Fuse F1 is blown.	Replace the fuse.
The internal light of the relay module does not flash	The wiring between the relay module and the main controller is incorrect.	Fix the wiring.
	The ID number is incorrect	Make sure the ID number of the relay module is set to ID #5
	The end of line jumpers are not positioned correctly	Set the end of line jumpers to YES at both ends of the communication line. Other end of line jumpers must be set to NO.
	The relay module is defective.	Replace the defective module.
The weight reading is too high.	The load bar is distorded.	Replace the load bars
The weight reading is not correct	If the bin has been calibrated with the 1-point calibration mode : The load bar sensitivity is not set properly in the controller.	Make sure the sensitivity of load bars specified in the controller corresponds to reality. The sensitivity value written on the load bar's calibration certificate correspond to the sensitivity value posted in the controller (see sec. 5.6.1).
	If the bin has been calibrated with the 2-point calibration mode : The sensitivity of load bars may have changed with time.	Redo the 2-point calibration once a year or each time the bin gets empty.

TARGET BIN SCALE RF

PROBLEM	CAUSE	SOLUTION
The weight reading is not correct	The output voltage (V_{out}) of the load bar exceeds 15 mV (1V for instance).	Check your wiring.
		Replace the load bars.
	The $V_{div\,1}$* voltage is higher than the entry voltage (Vin)	Check your wiring.
		Replace the load bars.
	The $V_{div\,2}$* voltage is higher than the entry voltage (Vin)	Check your wiring.
		Replace the load bars.
	Load bars are not connected	Make sure load bars are connected properly.
	A wire has been severed.	Replace the severed wire.
	The LCT-3 module is defective	Replace the LCT-3 module.
The weight reading never changes	The wiring is incorrect	Check the wiring and make sure the input voltage of the load bar is not 0V.
	There is a short-circuit at the load bar input.	Replace the defective unit.
Load bars are affected by thunderstorms.	The grounding of bin legs is incorrect.	Make sure ground straps are connected as shown on the mounting instructions of of the load bars.
The accuracy of the weight reading changes as the bin discarches itself.	Bad calibration.	Recalibrate the bin.
	The washer between the load bar and the bin leg is not installed or not mounted correctly.	Empty the bin then install the washer. Once the washer is properly installed, recalibrate the bin.
	The bin weight is not distributed evenly on the bin legs.	Make sure the feed weight is distributed evenly in the bin.

* V_{div1} /$_{div2}$/$_{in}$/$_{out}$: refer to previous diagram (Voltage Checkup diagram).

PROBLEM	CAUSE	SOLUTION
The LCT light does not flash	The voltage between PWR and GND terminals of the LCT module or between terminals 1 and 4 of the main controller is too low. (5-11VDC)	The voltage selection switch is in the wrong position. Set the switch to the correct position.
	There is no voltage between PWR and GND terminals of the LCT module or between terminals 1 and 4 of the main controller.	Fuse F2 of the main controller is blown. Turn the power off and replace the fuse. If the fuse blows regularly, check the wiring or replace the LCT module.
	ID numbers are not set properly.	Make sure the ID numbers are set as follows: ID # 1 = LCT-3 module of bin 1 ID # 2 = LCT-3 module of bin 2 ID # 3 = LCT-3 module of bin 3 ID # 4 = LCT-3 module of bin 4.
	The end of line jumpers are not positioned correctly.	Set the end of line jumpers to YES at both ends of the communication line. The other end of line jumpers must be set to NO.
	The wiring between the LCT module and the main controller is incorrect.	Fix the wiring.
	The LCT module is defective.	Replace the defective module.

10. TECHNICAL SPECIFICATIONS

Type	**TARGET BIN SCALE RF**
Main supply fuse F1	⊣▭⊢ 1A, fast-blow
Main supply/frequency	115/230V + 10% -20%, 20VA, 50/60Hz
14Vdc output	14 Vdc ± 10%, regulated,100mA max.
14Vdc output fuse F2	⊣▭⊢ 1A, fast-blow
Housing	IP54, plastic casing
Operating temperature	0 to 40°C (32 to 104°F)
Storage temperature	-15 to 50°C (32 to 104°F)
Ambient relative humidity	max. 95%
Alarm Relay	10mA to 2A, 24 Vac or dc max.
Pollution degree	2
Altitude	Up to 2000m
Installation Category:	Class II

Type	**TRB-8**
Main supply fuse F2	⊣▭⊢ 1A, fast-blow
Main supply/frequency	115/230V + 10% -20%, 20VA, 50/60Hz
Relay Output 1-8:	10A Res, 1/2HP 250VAC
Output fuses	
F1, F3, F4, F5, F6, F7, F8, F10:	10A slow blow
Housing	IP54, plastic casing
Operating temperature	0 to 40°C
Storage temperature	-15 to 50°C
Ambient relative humidity	max. 95%
Pollution degree	2
Altitude	Up to 2000m

Type	**LCJB-8**
Input	5 @ 15 VDC 100 mA MAX
Housing	IP54, plastic casing
Operating temperature	-40 to 40°C (-40 to 104°F)
Storage temperature	-40 to 50°C (-40 to 122°F)

Type	**LCT-3**
Input	11 @ 20 VDC 140mA MAX
Housing	IP54, plastic casing
Operating temperature	0 to 40°C (32 to 104°F)
Storage temperature	-15 to 50°C (5 to 122°F)
Ambient relative humidity	max. 95%

The room temperature where the controller is located must always remain between 32° and 104°F (0° and 40°C).
For indoor use.

11. MEMORY CARD

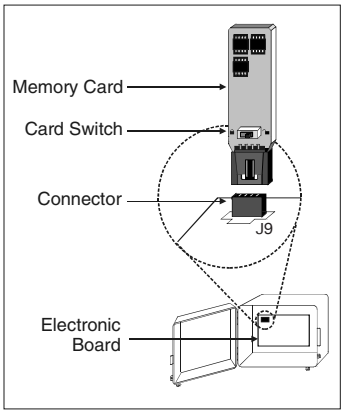
The memory card is used to create a backup copy of your controller's configuration. The card is also useful to transfer the configuration of one controller to another controller of the same type.

The switch at the bottom of the card is used to lock or to unlock the card (= locked, = unlocked).

Turn off power each time you open the controller's enclosure. This prevents accidental exposure to areas of high voltage.

TO TRANSFER A CONFIGURATION:

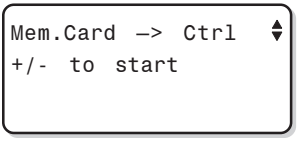
1. Turn off power to the controller.
2. Open the latch and lift the controller's cover.
3. If you are about to copy the controller's configuration on the memory card, make sure the card's switch is at the unlocked position.
4. Insert the card in the J9 connector located on the electronic board inside the controller. Components of the memory card must face down as illustrated.



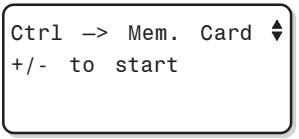
5. Close the cover then reapply power to the controller. The transfer menu should be shown on screen (if this is not the case, simultaneously press the up- and down-arrow keys for 3 seconds to display this menu).

6. Use the up- and down-arrow keys to select the proper type of transfer:

MEMORY CARD → CONTROLLER:
To transfer the memory card's content into the controller, select the **"Mem.Card → Ctrl"**. Once it is selected, simultaneously press the + and - buttons to start the transfer.



CONTROLLER→ MEMORY CARD:
To save the controller's configuration into the memory card, select the **"Ctrl → Mem.Card "** menu. Once it is selected, simultaneously press + and - buttons to start the transfer.



7. Once the transfer is over, simultaneously press and hold the up- and down-arrow keys for 5 seconds to exit the transfer menu, then remove the memory card from the connector as follows:
   - Turn off power to the controller;
   - Open the controller's cover;
   - Remove the card from the connector;
   - Close the cover then reapply power to the controller.

IMPORTANT:

REMOVE THE MEMORY CARD FROM THE CONNECTOR WHEN THE TRANSFER IS OVER!

8. Lock the card's switch (🔒) if required.

TRANSFER ERROR

The controller will not warn you if the transfer is incorrect.
Respect the following rules to make sure the transfer works properly:

- Make sure the card switch is at the unlocked position before transferring a configuration on the card.
- Do not move or hold the card while a transfer is ongoing.

12. INSTALLATION REPORT

CLIENT

Name: _____

Address: _____

_____

_____

City: _____

Tel.: _____

Fax: _____

INSTALLER

Name: _____

Address: _____

_____

_____

City: _____

Tel.: _____

Fax: _____

Time Clock Settings

[refer to section 6.2.3 to program time clocks and
refer to section 5.4 to assign them to augers and feed lines]

Output		Time Clocks	Room	Bird	Relay
Augers (section 5.6.3)	Auger 1	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8	☐1 ☐2	☐M ☐F	1
	Auger 2	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8	☐1 ☐2	☐M ☐F	2
	Auger 3	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8	☐1 ☐2	☐M ☐F	3
	Auger 4	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8	☐1 ☐2	☐M ☐F	4
Feed lines (section 5.4.3)	Feed line 1	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8			5
	Feed line 2	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8			6
	Feed line 3	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8			7
	Feed line 4	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8			8

Your Calibration Settings: [refer to section 5.6]

BIN 1			BIN 2		
Offset		:	Offset		:
Sensitivity	Load Cell 1	:	Sensitivity	Load Cell 1	:
	Load Cell 2	:		Load Cell 2	:
	Load Cell 3	:		Load Cell 3	:
	Load Cell 4	:		Load Cell 4	:
	Load Cell 5	:		Load Cell 5	:
	Load Cell 6	:		Load Cell 6	:
	Load Cell 7	:		Load Cell 7	:
	Load Cell 8	:		Load Cell 8	:

Time Clock Settings

[refer to section 6.2.3 to program time clocks and
refer to section 5.4 to assign them to augers and feed lines]

	Clock 1		Clock 2		Clock 3		Clock 4		Clock 5		Clock 6		Clock 7		Clo
Cycle	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start
1															
2															
3															
4															
5															
6															
7															
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9															
10															
11															
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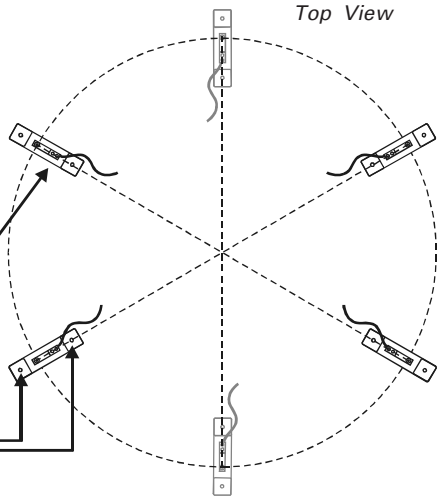
24															

ANNEX A – LOAD CELL INSTALLATION

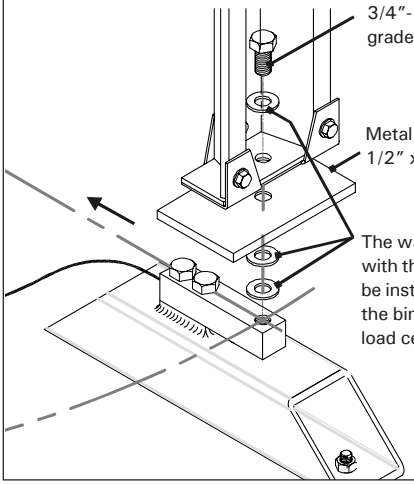
Concrete slab must be flat and leveled. The system will only work if all leg supports are at the same level!

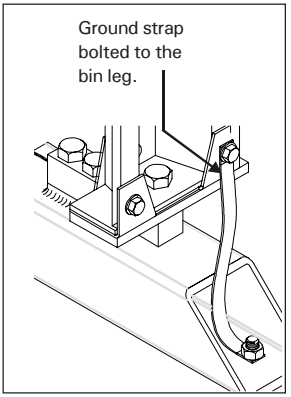
All load cells must be placed inside the circle made by the legs of the bin.

Mounting holes are 16″ apart, for 1/2″ dia. threaded rod or bolt, grade 5 or higher



The bin leg should never touch the load cell, it must rest on the washers!





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